RESTRICTED CIRCULATION

THIS PAPER IS NOT AN OFFICIAL DOCUMENT; IT IS FOR INFORMATION ONLY AND MUST NOT BE QUOTED IN ANY PRINTED PUBLICATION

Agricultural Memorandum No 641

Parasitic Gastro-Enteritis - Effect of rainfall

L P Smith

The severity of incidence of P.G.E. was ascertained on a 1-8 scale for the years 1954 - 1969. Previous work had shown that summer rainfall affected this severity and it was also thought that dry weather the previous autumn increased the risk.

June to November monthly rainfall totals were extracted for Cockle Park, Ilkley, Belper, Marlborough, Exeter and East Malling, and weighted by factors appropriate to the total sheep in the areas, NE, NW, Midlands, South, South-West and South-East, namely 3-5-4-1-5-2, to give a national figure.

The yearly severity ratings were analysed with respect to weighted rainfall (in inches) in periods :-

May-August
June-August
August-November (previous year)
September-November (Previous year)
August- October (" ")
October-November (" ") and also to the return to capacity date the previous autumn .

Using all 8 parameters, the best fit gave a multiple correlation of 0.89. It was found that the June-August total was far more significant than the May-August total, and if the return date was used, none of the autumn rainfall totals provided much extra information.

Deducing a double regression :-

Severity rating = 0.79 A + 0.35 B -3.97 (correlation 0.88)

where A = June-August rainfall
B = return to capacity date (on scale Sept 5 = 1, Sept 15 = 2 etc)
(with a maximu of 10 = Dec 5th)

The partial correlations were, on rainfall 0.74
on return date. 0.62

Details are given in the Appendix

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
Bracknell

April 1975

FH2B

Appendix

Year	June-August Rain	Return Date	Disease Rating Actual	Disease Rating Estimated
1954	9.5	8.1	6	6.4
1955	5.0	2.7	1	0.9
1956	11.1	9.8	6	8.2
1957	7.9	0.9	3	2.6
1958	9.7	5.3	7	5.5
1959	4.6	2.2	1	0.4
1960	8.7	8.7	8	5.9
1961	6.2	3.3	1	2.1
1962	5.6	7.9	3	3.2
1963	8.7	6.7	5	5.2
1964	6.0	5.5	2	2.7
1965	8.6	10.0	7	6.3
1966	9.0	3.2	5	4.3
1967	6.7	2.9	2	2.3
1968	8.1	3.6	5	3.7
1969	7.8	1.9	1	2.9
Independent Test				
1970	6.3	8.2	1	3.9
1971	8.8	8.0	3	5.8
1972	6.0	7.9	4	3.5
1973	8.4	9.1	5	5.9
1974	8.0	5.6	6	4.3